The Training School **Bulletin**

"For the practicing professions concerned with mental retardation"

AUGUST, 1958

A Report on the CONFERENCE on DIAGNOSIS in MENTAL RETARDATION, May 1958

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The Training School BULLETIN

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1. Articles of a technical nature, e. g., reports of research, discussion of problems in the field.
2. Non-technical articles of general interest, e. g., human interest stories of the mentally retarded, restatements of technical material for the layman.
3. Book reviews and news notes.
4. In special instances republication of important articles having limited distribution.

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Walter Jacob, Ph.D.
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COVER: Dr. Douglas Murphy, main speaker for the evening, addresses guests at the 70th Anniversary dinner held during The Training School's two-day Conference on Diagnosis. Attending the dinner were Conference speakers and discussants, The Board of Trustees and Board of Visitors, Fi Club Members, and members of the Conference audience. Seated at left are Dr. Jacob, Director of The Training School, and Bayard L. England, President of The Board of Trustees. At the right are Mrs. Richard J. Walsh, Vice President of The Board of Trustees, and The Honorable Francis A. Stanger, member of The Board of Trustees.

THE
TRAINING SCHOOL
BULLETIN

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Report on Conference on DIAGNOSIS IN MENTAL RETARDATION

Preface

On May 19-20, 1958, a two-day Conference on Diagnosis in Mental Retardation was held on the main campus of The Training School at Vineland, New Jersey. The Conference marked one of the events being held in honor of the School's 70th anniversary. Eighteen speakers and discussants from ten disciplines concerned with the problem addressed a selected audience of professional workers in the field.

The Conference was called to explore "one of the most pressing problems confronting workers in the field of mental retardation . . . the need for competent, uniform standards and procedures in the critical area of diagnosis of the mentally retarded".[1]

Background

In selecting the topic and planning the Conference, the committee[2] noted that the need for competent diagnosis was becoming more evident because:

1) the number of organizations working with mental retardates is increasing.
2) clinical specialists find their treatment programs hampered by incomplete and incompetent diagnosis.
3) validation of studies is often open to question.
4) researchers find investigations producing variable results under different investigators because of inadequate diagnosis.
5) the situation is further complicated by the nature of mental retardation which in itself represents the result of a constellation of factors rather than a single entity, such as measles or diptheria.
6) the size of the problem, estimated at 3% of the population in the United States alone, warrants increased close attention.

Goals

To probe every condition of the patient which in any way is related to his retarded condition was the immediate goal of the Conference. Included were the problems of medical status, etiology, sensory, emotional and psychotic involvement, and, possibly, prognosis and the general plan for the best care and treatment of the patient.

The ultimate goal is that research projects based on the Conference findings will be set up at The Training School or elsewhere to develop an optimal diagnostic program where completeness of investigation is balanced against economy and which will offer a standard pattern procedure for clinics and other centers everywhere.

Because it is believed that some of the medical disciplines offer considerable promise for diagnostic improvement, these particular disciplines were more fully represented than those traditionally more intimately associated with mental retardation.

Morning sessions included those fields which represented CONSULTANT AREAS not yet greatly active in mental retardation.

Afternoon sessions were given over to STAFF AREAS which more commonly are represented in centers working with the retarded.

SPEAKERS and DISCUSSANTS

Following are those who presented papers at the Conference and the fields they represented:

CONFERENCE SPEAKERS

Biochemistry

Seymour Kaufman, Ph.D.
Laboratory of Cellular Pharmacology
National Institute of Mental Health
Bethesda, Maryland

Neurophysiology

Theodore C. Ruch, Ph.D.
Professor and Executive Officer
Department of Physiology and Biophysics
University of Washington School of Medicine
Seattle, Washington

Electrophysiology

Margaret A. Kennard, M.D.
Director
Mental Health Research Institute
Fort Steilacoom, Washington

Neurology

George A. Jervis, M.D.
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Letchworth Village
Theills, New York

Speech and Hearing

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Queens Speech and Hearing Center
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Yale University
New Haven, Connecticut

Psychiatry

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Director
Children's Psychiatric Service
Harriet Lane Home for Children
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Education

Lloyd Dunn, Ph.D.
Coordinator
Education of Exceptional Children
George Peabody College
Nashville, Tennessee

CONFERENCE DISCUSSANTS

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Pacific State Hospital
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Brooklyn College
Brooklyn, New York

Education

Samuel Kirk, Ph.D.
Director
Institute for Research on Exceptional Children
University of Illinois
Urbana, Illinois

Education

Harold R. Phelps, Ph.D.
Assistant Professor
Bureau of Special and Adult Education
Ohio State University
Columbus, Ohio

DINNER SPEAKER

Douglas P. Murphy, M.D.
Associate Professor of Obstetrics and Gynecology
Department of Gynecology
Hospital of the University of Penna.
Philadelphia, Pennsylvania

INTRODUCTION

Walter Jacob

With the placing of an earth satellite in orbit, man has established another milestone in his relatively short time of existence on this earth. No one will doubt the future growth of many and profound influences on us all from this accomplishment. Our concepts for study and investigation soar upwards to the skies like the very rockets used to send the satellite on its way.

There are other areas of study awaiting our attention which are still earthbound but every bit as intriguing, every bit as challenging, and possessed of potentials every bit as infinite as those of space study. I refer particularly to the job of probing and understanding that part of man's physical organization that made the space machines possible; his brain. We are facing the possibility, if the actual condition is not already with us, of knowing more about the great, uncharted outer spaces of the universe than we do about the great, uncharted spaces of the human mind. We must know more about ourselves if we will know more about the ideas we create and the mechanisms we accomplish. The intellect remains for us the great machine for conceiving, directing and controlling most forms of creative activity.

Our particular interest is in learning more about normal minds by studying deviations from them. There are various conditions involving the central nervous system where types of deviation permit study by different professional specialists. We are concerned with those factors which, in concert, produce what we call mental deficit. We are appalled at the high numbers in our population so affected. The fact that two parents are concerned throughout their lives about each child so conditioned enlarges the group to a significant portion of our population. Undoubtedly similar proportions exist in all nations.

Possibility of Prevention

For those who have worked intimately with the problem for many years there is understanding of the tremendous need for action toward prevention of mental deficit in light of today's knowledge. At The Training School here at Vineland we have worked at it for seventy years. The time has come, especially in light of our understandings of non-inherited causes, for a concentration of effort by those representing many fields of endeavor in order that more impressive results be obtained.

Need for Competent Diagnosis

Both the clinician and the research worker find their first task that of identifying the condition of mental retardation in the child who appears for treatment or to be a part of an investigative activity.

In Clinical Services

Those who carry on clinical services with mentally retarded children know well their frustrations and feelings of inadequacy caused by poor or incompetent diagnoses. There certainly are enough reasons for the lack of knowledge that inhibits our making good critical diagnoses. The complex nature of mental retardation which has not been approachable by routes normally taken to define an entity, like measles or diphtheria; the necessity of translating the depth and severity of mental deficit by observing symptoms; the long, slow, tortuous paths by which any subject matter might be taught these children; and, probably the most important reason, the traditional attitude of disinterest, if not downright dislike, of lay people and professional workers in those whose condition was so incurable, lend sufficient explanation for the paucity of information existing which limits the tools needed for good diagnosis.

In Research

Whether the research scientist recognizes the tremendous opportunities for investigation and revelation in this area of mental deficiency is not yet clear. We have mentioned that by studying the deviate we can learn much about the normal. Certainly the mentally deficient are deviates from the normal. Our work here at The Training School with the I.Q. Test to discriminate among subnormals has influenced a far greater number of normal intellects in educational institutions and industry than it ever has subnormals. It has furthered greatly our understanding of normal intellect. This has been repeated similarly in the cases of other tests and findings.

In research, it is not uncommon for later studies to seem to refute earlier ones with embarrassing frequency. Usually this can be traced to new refinements in identifying and classifying the individuals which make up the primary material on which a particular study was based. In other words, differential diagnosis had improved, however so slightly. So the research worker as well as the clinical worker comes face to face with the difficult problems of making usable and competent diagnoses.

Work of Administration

We must mention also three supporting groups in this work. The administrator brings together the staff and coordinates the efforts of an increasing number of specialists toward effective synthesis which results in possible solutions to our problems. With increasing specialization this becomes more difficult.

Lay Interest

The active, intelligent interested layman lends assistance in ways and areas in which only he can operate to bring about our success. Included in this group are the parents of retarded children who have organized so vigorously and effectively in the last decade.

Governmental Aid

The growth of governmental interest to a point where it overwhelms most private effort in some fields of humanitarian endeavor is a modern miracle. The combination of private and public effort is essential. The freedom of the unobligated private organization to follow any venture which it may deem important is an invaluable asset. The interest and support of governmental agencies with their great quantities and varieties of abilities encompassed in the vast numbers of professional workers in federal, state, and local organizations are sources of tremendous assistance. Together these private and public workers form the greatest potential force the world has ever known for overcoming traditional obstacles to gaining the knowledge we need.

It seems that a time in the history of man has been reached where a combination of civic and professional awareness and high scientific specialization may well break through this first great obstacle to adequate treatment and competent investigation. Through interdisciplinary coordination we see a broadening roadway leading to the accomplishment of competent diagnosis.

This must be made more than a possibility. It must become an actuality. The afflicted child must be given more adequate assistance. The burdened parent must find his load lightened. The nation must realize an increase of useful citizens. Good diagnosis forms the essential platform from which our explorations into the furthermost reaches of human intellect may rise.

The Conference

That is why we are conjoined here for these two days. The speakers and discussants represent each a highly specialized field that has a great inherent interest in mental retardation. Those attending the Conference are selected workers in their fields, purposely limited in the number invited.

The Conference is the brainchild of our professional staff and represents one element of the celebration of our seventieth anniversary year.

The past five months of preparation represents a short time indeed for the development of any professional program and we are doubly grateful therefore for our friends who readily offered to share in the support of this Conference: The Pfizer Foundation, Inc., Schuyler Wells, George F. Brewer, Charles C. Haas, J. Gibson McIlvain, Jr., and Philip Sporn.

Our Goal

We hope that our deliberations during these two days pave the way toward projects which will lead to the development of standardized procedures of diagnosis of the mentally retarded which can be useful to workers everywhere.

Walter Jacob

CONSULTANT AREAS

NOTE:

The Conference papers are divided into Consultant and Staff Areas. The following Consultant Area pages attempt to capture the salient points and conclusions in synopsis form, as opposed to professional abstraction. This section covers not only the paper presented, but pertinent ensuing discussion.

NEUROPHYSIOLOGY IN DIAGNOSIS

Theodore C. Ruch

Scope

Dr. Ruch's paper discussed the physiology of emotion and motivation with the hope that the workers in the field of mental deficiency might be able to correlate if possible the findings of his discipline with the purpose of the conference, that of arriving at an improved diagnosis of mental deficiency. He proposed to do this by giving a conspectus of the neurophysiology of emotion and motivation necessitating a review of pertinent research and the neuroanatomy of the brain.

Emotion and Motivation

According to Dr. Ruch, prior to World War II, we knew three facts about the brain regarding emotion and motivation. These were, that first decortication made animals overactive to rage and sometimes fear provoking stimuli; secondly that sections of the mid-brain producing Shantonian-cerebrate-rigidity abolished virtually all emotional display; thirdly the area responsible for these particular emotional displays was the posterior hypothalamus.

Since World War II enormous strides have been made in the understanding of the neurophysiology of normal and abnormal behavior. Whereas the psychiatrist is interested in the stimuli received by the brain, the changes which take place and the resulting behavior, the neurophysiologist is interested in the neural events and structures intervening between the input and output. This is a matter of pure science but there is the thought that the understanding of the mechanism of any process may lead to something profitable in the way of diagnosis or therapy.

Investigation and Emotion

The first and perhaps most difficult aspect in the investigation of emotion is to work out objective and quantitative methods of observing and recording responses. The next step is to remove from the brain a component, that is to destroy a local area and observe the changes in output or behavior. We expect as a result of this to see one of two things, the reduction or abolition of an activity or the activity may become greatly increased. Another procedure is electro-stimulation of the brain of the animal in a behavioral situation designed to measure the results quantitatively.

As a result of such experiments almost every basic emotion and drive has been produced by brain stimulation or manipulated up or down, that is increased or decreased by destruction of some fairly localized restricted focus of the nervous system.

Animal Research

Dr. Ruch attempted to document these statements with a series of developments covering this area of research activity with animals, in each case pinpointing the anatomical structures involved.

CONSULTANT AREAS

NEUROPHYSIOLOGY IN DIAGNOSIS (Continued)

1. Animals can be rendered aggressive and savage or made tame and placid by neural lesions.
2. Ways have been found to make good guesses regarding the conscious or inner aspect of emotion.
3. Behavioral changes can be induced in fundamental drives, such as eating.
4. Acceleration of sex drive can be induced by neural lesions.
5. A hormonal relationship exists with bodily stress.
6. A new system of fibers has been discovered known as the "ascending reticular system."
7. Pleasurable emotions can be induced by electrical stimulation of brain.
8. Riencephalon is considered responsible for some other types of behavior such as placidity and fearlessness, rage and aggressiveness and others in addition to olfaction.
9. Assessing mental capacity involves three major factors:
    a. the capacity itself
    b. adequate sensory channels and motor ability
    c. motivation

Dr. Ruch mentioned the similarity between behavior of amygdalectomized monkeys and hyperactive children is striking and may be of diagnostic value. According to a recent study, there was found an unusual and sustained interest in the feature of the immediate environment. This interest was usually shown as a marked tendency to bring each object to the mouth to suck, lick or chew. Also, the monkeys explored identical objects for extended periods of time.

Diagnostic Approaches

If we reason from the animal experiments we can suggest several diagnostic approaches. Because contrary functions are wrapped up In this small region of the brain we should not expect all patients with temporal lobe damage to have the same emotional symptomatology. A slight shift of the focus of damage could accent different features or even contrary ones. Now that somewhat specific localization within the amygdalar region appears to be emerging from the animal studies one might look for more restricted behavioral changes than the whole hyperkinetic syndrome as known today. Lesser damage or more restricted damage might produce fractional behavior abnormalities that are not being recognized out of the context of the total syndrome. (A further possible diagnostic implication is this;) According to a review of the clinical literature, when the hyperkinetic child reaches adolescence the syndrome tends to lessen or disappear whereas but hypersexuality has figured prominently in most of the animal studies. There is no mention of this in the clinical literature regarding the child. It would pay to give particular attention to possible organic causations of abnormal sex behavior.

Motivation

There has been the tendency to consider motivation as two dimensional — the goal orientation which gives direction and the intensity dimension which corresponds to attention, arousal, alertness and excitement.

Applying this to the diagnosis of mental deficiency it is obvious that the determination of maximum capacity requires careful adjustment of motivation and an independent measure of motivation would be desirable.

Future Areas

In concluding, Dr. Ruch asserted that we abound in reasons which suggest we look toward subcortical rather than cortical structures being involved in emotion and motivation, and (the) marked alteration in behavior as a result of damage.

CONSULTANT AREAS

ELECTROPHYSIOLOGY IN DIAGNOSIS

Margaret A. Kennard

Scope

Dr. Kennard's paper dealt with the relation of electroencephalography as a diagnostic tool in the development of a better diagnosis of mental deficiency.

Present Uses of EEG

Dr. Kennard mentioned some of the present uses of EEG as related to mental deficiency. The EEG is an objective record of the sum of electrical activity of the cerebral cortex. We know the normal rhythmic EEG patterns to expect at a given age. We also know what to expect as normal when the stimuli are impinged upon the subject. Situations which alter the structure of the cortex may alter the EEG pattern. An absence of brain tissue may produce EEG changes. As our knowledge of the etiology of dynamic factors underlying disordered thinking processes has become more particular we have been able to relate the EEG to behavior patterns more specifically for diagnostic and prognostic purposes. There might be investigated the thought that there is a relationship between EEG patterns and structural organic disorders relating to mental deficiency. When an obvious degenerative disorder is present then the EEG might reflect the change. Dr. Kennard mentioned this to be true in cases of Huntington's chorea, and deficits in metabolic conversion such as phenylketonuria.

EEG and Brain Injury

In relation to brain injury the EEG can be most useful. Focal changes and their nature can be detected. There have been, however, a large number of cases of mental deficiency in which no known organic structural disorder underlies the clinical pattern.

Psychogenic factors may result in pseudo-mental deficiency. There are EEG indications which may aid in diagnosis here.

Finally there are, in a certain number of cases, organic structural changes in the brain which may be causally related to mental deficiency. Then, the EEG should be able to record the structural deviations.

EEG and Functional Disorders

Dr. Kennard then proceeded to present evidence which suggests that functional behavior disorders may be indicated also by EEG types. She mentioned that from 5% to 10% of normal children have abnormal EEG patterns. Children in hospitals and schools for retarded have a much higher percentage of EEG abnormality. Up to 75% of young autistic or schizophrenic children have abnormal EEG's for their age.

EEG and Mental Age

At this point Dr. Kennard showed slides to familiarize the audience with EEG's. The patterns ranged from normal to abnormal patterns. It could be possible that EEG patterns among mental defectives relate to mental age rather than chronological age. This possibility is based on a study done by Hill who showed that EEG patterns of hostile and aggressive adolescents in mental hospitals, while abnormal for their given age would be normal if a child were several years younger. These findings stimulated further research and in 1936 Dr. Kreezer conducted a study and concluded that there is no simple one to one relationship between mental age and EEG patterns. These findings have been confirmed in present day research. In 1956, Dr. Beckett et al, conducted a study with a population of 74 mentally deficient children. He found that 60% of these children had abnormal tracings and that the least mentally retarded children had the most normal EEG's. The converse was also found to be true. Dr. Kennard said that there is still no evidence that we can diagnose mental deficiency accurately and fully by the EEG.

Mental Retardation and Emotional Disturbance

Dr. Kennard went on to discuss functional mental deficiency as an index of a psychogenic disturbance, pointing out the difficulty of making a diagnosis because of the conflicting pattern of behavior and of clinical history between organic brain dysfunction and disturbance of psychogenic origin.

CONSULTANT AREAS

ELECTROPHYSIOLOGY IN DIAGNOSIS (Continued)

Kennard

She then presented the data obtained from a study conducted at the Mental Health Research Institute in Washington. The study evolved from the fact that mentally disturbed children have a high incidence of functional mental retardation.

The population in this study consisted of 200 mentally disturbed children and adolescents admitted to mental hospitals because of behavior disturbance. Fifty-five of these children were classified as having borderline intelligence and 37 as dull normal intelligence. The incidence of mental retardation was found to be higher among the age group 7-12 than among the 15-16 age group. The incidence of abnormal EEG was highest among the youngest group, the relation of the EEG being to age rather thon to I.Q.

The low I.Q., however, is not related to age but to organicity as attested to by the findings that 50% of the organics are functioning at the level of borderline intelligence whereas only 13% of the non-organics are functioning at that level.

From these findings it was concluded that there is a strong positive relationship of intelligence to the presence or absence of organic brain disorder, and that the abnormality is related not only to mental retardation of the organic, but also to psychopathology particularly in young children.

DISCUSSION

Detection of Organic Pathology

Inquiry was made of Dr. Kennard regarding conventional methods of detecting organic brain pathology particularly regarding acceptance of "soft signs" of organicity and of psychological evidences of brain damage. She replied stating that her diagnoses were made by a team of clinical people but that the neurological examinations were not added. The diagnosis was made from a history of brain injury, such as brain fever, measles, mumps, or encephalitis and with exhibited responses in many of the children of hyperactivity, easy distractability, low frustration tolerance and the like.

Abnormal Waves

She was also asked to elaborate on the criteria of abnormality in brain waves, particularly in the age group around 7-12. Dr. Kennard stated that the pattern of the EEG in the adult and child in mental hospitals is different from that obtained from each outside. This shows best in the frequency analyzer pattern. She felt that there was evidence to suggest that a large increment in 15-16 year olds who may be thought of as normal but dysrhythmic are the thought disturbance group which must be those which mature later and which we call **abnormal** in the younger age group.

CONSULTANT AREAS

NEUROLOGY IN DIAGNOSIS

George A. Jervis

Scope

Dr. Jervis, in considering the diagnosis of mental retardation by neurological examination, thought that psychologists, teachers, sociologists, and medical personnel have different purposes in mind. The medical scientist is interested in etiological factors. To the psychologist and teacher this is secondary.

Physiological Mental Retardation

He offered an etiological classification of mental deficiency which included the distinction of physiological from pathological mental deficiency. The **psychological** is meant to denote defectives without pathological condition which might interfere with normal function of the brain and therefore no clinical manifestation. He felt that it would be futile to look for neurological abnormality or for clinical neuropathological correlation in the group lying below the arbitrary line of I.Q. 70-75 made up of those who do not fit into any specific diagnostic category. These may often be known as "undifferentiated" or "residual". Probably all the minute neurological deviation described in this group are found in the general population.

He thought it would be futile also to investigate the morphological difference between the brain of a physiological defective of I.Q. 60 and that of a person with I.Q. 100. These are undetectable by present morphological or biochemical methods.

Therefore the problem in the physiological type of mental deficiency is outside the clinical neurological area, and concerns mainly the sociologist, educator, psychiatrist, and geneticist. The neurologist can only indicate the negativity of the finding in this group, which is a rather large group including particularly high-grade defectives.

Pathological Mental Deficiency

The situation is different with **pathological** mental deficiency, which can be divided into endogenous and exogenous types. In the endogenous defect is determined mainly by genetic causes, by single pathologic dominant or recessive genes. The dominant include all the thermoplastic forms of mental deficiency, tuberous sclerosis, neurofibromatosis, engomatus types and disastosic forms such as hypertelorism. Diagnosis is a matter of superficial inspection, usually not of any detailed neurological examination.

These symptoms may occur in attenuated or incomplete forms and in some, for instance in tuberous sclerosis, incomplete forms are more common than complete. These require more complete neurological examination for diagnosis. Ultimately the diagnosis in these forms may rest only on pathological examinations of biopsy or autopsy material.

The recessive forms of mental deficiency are better known. We know of some 30 different conditions or types of recessive mental deficiency. Many are associated with some abnormalities of metabolism which means that diagnosis is usually made on biochemical tests without neurology being involved. Dr. Jervis suspects in the discovery of some five new types of metabolic mental deficiency during the last two years neurology has a function. The neurologist may direct the biochemist by demonstrating clinical similarities in the group. In cases characterized by metabolismal fat, the biochemist has little role in diagnosis.

Among recessive forms certain types of cerebellar atrophy are usually misdiagnosed because of insufficient neurological examination mainly due to the difficulty on eliciting minor cerebellar signs affecting the indivaduals. Many autopsies of institutionalized children show malformation of the brain which are of prenatal origin. Precise etiologic classification is not possible at present. Dr. Jervis felt that most minor malformations escaped clinical detection while the child is alive.

CONSULTANT AREAS

NEUROLOGY IN DIAGNOSIS (Continued)

Jervis

In exogenous cases prenatal causes result in destruction of the brain as well as do trauma at birth and noted injuries thereafter. The diagnostic classification manual recently published by the Academy of Cerebral Palsy could serve as a model in the field of mental retardation.

In the infant, minor alterations in posture and changes in the chronological appearance or disappearance of special reflexes can give clues about brain damage. The EEG helps greatly. Acute encephalitis should be diagnosed much more readily than has been done so far. Meningeal, virus, and allergic types should be distinguished.

Epilepsy

Dr. Jervis felt that all who work with the mentally retarded should know much about epilepsy. He also described the condition known as "hypsorhythmia" and its treatment. Most cases have extremely high, slow waves with spiking and have been severely deficient. When recognized early enough and treated with ACTH some 70-80% of these children recovered completely and were not defective. He concluded by referring to cases involving hypoglycemosis and infantile schizophrenia, and by referring to a new study which found there was no such thing as an organic or functioning picture in psychological testing.

BIOCHEMISTRY IN DIAGNOSIS

Seymour Kaufman

Scope

Because the multiplicity of "discreet disorders where mental deficiency is one of the symptoms" places the biochemist in a dilemma, Dr. Kaufman restricted his discussion to galactosemia and phenylketonuria, two conditions where some biochemical insight has been gained. He feels that by studying what is known about the causal relationship between the biochemical defect and the mental deficiency in each case one might judge the possibilities of other more widespread diseases associated with the condition.

Galactosemia

In galactosemia, of which Dr. Kaufman reports only about 50 cases reported in 50 years, the steps involved in the oxidation of galactose in the body were elucidated finally in 1948. In 1956 it was found that feeding galactose or milk to infants with the disease led to the accumulation of galactose-l-P in the erythrocytes. Kalckar's studies showed that the reason for the accumulation of galactose-l-P is the almost complete inactivity of the enzyme galactose-l-P uridyl transferase in the galactosemic. The disease has been classified as one of the "inborn errors of metabolism" along with alkaptonuria, tyrosinosis and psenylketonuria. Evidently the gene which normally controls the manufacture of the transferase enzyme is either missing or altered leading to the absence of a functional enzyme.

Dr. Kaufman believes, if one is to appreciate fully the possible implications on other conditions of mental retardation, the important question of why this enzyme block produces the clinical symptoms associated with it must be answered. He reviewed work done on the toxicity of galactose itself. Prognoses seem good for those kept on a galactose-free diet early enough.

Kaufman

Phenylketonuria

He compared phenylpyruvic oligophrenia with galactosemia, describing galactosemia as a condition where the individual is totally sick and where mental retardation is only one of many abnormalities resulting from it. In phenylketonuria, by contrast, mental retardation is the only constant symptom. It, also, is a rare condition occurring in about 1 birth in 25,000-40,000 and accounts for approximately 1% of patient populations in institutions for the mentally defective. Indications are that it is inherited as a simple autosomal recessive character, allowing the physician to give reliable advice to parents of a known phenylketonuric about having another affected child. Two heterozygous parents should produce half their children heterozygous but clinically normal, a quarter normal, and a quarter clinically phenylketonuric.

No other symptoms seem noteworthy except possibly some skin abnormality which seems fairly frequent. It is suggested that a diagnosis of eczema in a retarded child should lead to an examination for phenylketonuria.

The author reviewed clinical characteristics of the disease and the general area of intermediary metabolism where the reaction takes place. Direct assays of the enzymatic activity in liver samples from phenylketonuric children have confirmed the idea that the enzyme system responsible for the conversion of phenylalanine to tyrosine is missing or inactive in the disease. The cofactor also is known to be present in normal amounts in phenylketonuric livers.

Biochemical Defect

What we do not understand is the relation between the biochemical defect and mental retardation. Why should a block in this enzymatic reaction lead to clinical symptoms? There is no case known where phenylalanine or a derived metabolite has shown to be a very effective inhibition of a normal reaction.

Another hypothesis suggests that clinical symptoms arise not directly from the primary genetic block but rather indirectly from the adaptation to this block. A chain of secondary responses exist as the organism strives to dispose of the compound whose normal metabolism is cut off.

One thing difficult to reconcile with the idea of a toxic agent is the fact that there are recorded cases of phenylketonurics with borderline intelligence. This may be explained by the secondary response theory.

Again, earliest possible treatments by way of low phenylalanine diets seem to prevent or at least reverse the symptoms. Changes in I.Q. have been shown to date to be marginal at best. Diagnosis is simple through a urine test. Various supplementary checks are described.

Future Areas

As to the future of further biochemical lesions in mental defect, the author is optimistic and mentions two recent reports which have a bearing. Hartnup's disease described in 1956 and bearing a remarkable resemblance to phenylketonuria and clinically to pellagra suggests that a missing enzyme reaction can lead to trouble not only because some metabolite piles up but also because there may be a deficiency in some compound normally found by reactions after the enzymatic block.

A more recent report by the same group describes what may be a metabolic defect in 2 children from the same family; born showing a severe degree of mental retardation. An apparently abnormal metabolic (unnamed) has been detected in the urine of these children.

CONSULTANT AREAS

BIOCHEMISTRY IN DIAGNOSIS (Continued)

Kaufman

The author concluded hoping that future diseases will be named not after physicians or patients but so that something about the underlying biochemical disorder is evident.

DISCUSSION

Indo-compounds

In the discussion period following Dr. Kaufman's paper he expressed the opinion that the indo-compounds were much more minor as excreta than was phenylpyruvic acid.

Skin Rash

Dr. Jervis suggested that clinicians be aware of skin rash worsening on exposure to light in cases of Hartnup's disease, particularly in cases of emotional disturbance. He also cited EEG records of galactosemics showing great abnormalities, and suggested paper chromatography be done on suspected phenylpyruvics, since a tremendous spot appeared on the graph which could not be mistaken.

Chromatographs

In discussion of the conversion of phenylalanine to phenylpyruvate Dr. Kaufman reported that the enzyme was detectable only in the liver, not the brain.

Organizing Resources For Testing

Dr. Kaufman was asked whether any of the USPH or any other governmental agency contemplated an organizing of resources so that more difficult testing for phenylketonuria, etc., could be done, instead of relying on voluntary aid to set up such centralization in a few locations. He did not know of any but thought it would be a good idea.

Biochemistry of New-Born

He also related that the new-born seems really missing in many enzymes, particularly phenylalanine katairasin conversion which seems to be essentially missing in one-day old animals but develops in four or five days. Biochemically, a one-day old infant is essentially similar to a phenylketonuric. Subsequently metabolism of tyrosine does not appear until a few days after birth.

METABOLISM-ENDOCRINOLOGY IN DIAGNOSIS

Edward Rose

Scope

Dr. Rose's paper examined briefly the problem of making a diagnosis of mental deficiency; to consider some of the more important examples of endocrine and metabolic disorders which are prominently associated with mental deficiency; and to consider an evaluation of the needs for the future.

Dr. Rose stated that approximately 20% of the population of institutions for the mentally deficient have some metabolic or endocrine disorder. It was his opinion that the members of his discipline were in a position to do little in the way of prevention or cure. He stated that early recognition is of paramount importance in attempting to correct endocrine and metabolic disorders with accompanying mental deficiency and should be considered in every mentally deficient person.

Endocrine and Metabolic Disorders

Dr. Rose enumerated a number of endocrine and metabolic disorders and described in detail their clinical pictures and possible treatments, including hypothyroidism, parathyroid functional abnormality, pseudo-hypoparathyroidism, galactosemia, phenylketonuria, hepatolenticular degeneration (Wilson's disease). Hypothyroidism has been effec-

CONSULTANT AREAS

METABOLISM-ENDOCRINOLOGY IN DIAGNOSIS (Continued)

tively treated by thyroid hormone therapy. Parathyroidism may be halted from further progress through maintenance of normal serum calcium and phosphorus levels and prevention of progression of other manifestations by permanent control with suitable daily doses of vitamin D-2 or dihydrotachysterol. Pseudo-hypoparathyroidism may be controlled by the same means as with hypoparathyroidism. Galactosemia may be preversed or prevented by prolonged maintenance on galactose-free diets. Phenylketonuria is treated with limited success by prolonged maintenance on diets free of phenylalanine. Wilson's disease, an intrinsic metabolic disorder of uncertain pathologenesis, has been treated to date with little avail, although tentatively favorable results have been reported from the use of certain chelating agents such as penicillamine.

Obstetrician and Pediatrician

Obstetricians and pediatricians or the family physician, according to Dr. Rose, are the first line of defense in early detection of endocrine and metabolic causes of mental retardation. Their alertness is of primary importance. Next in importance is the attitude of the professional personnel of the institution for the mentally retarded. Their sustained interest and curiosity may lead to recognition of diagnostic clues.

Regular Evaluation

A complete evaluation of the physical, neurophysical, social and emotional status of each patient is necessary on admission and regularly thereafter. This involves a team approach and an integrated record system.

Diagnostic facilities in an institution must be tailored to circumstances. Many facilities are impractical outside a medical center. Simpler routine procedures should be available locally and working arrangements made elsewhere for those more complicated and expensive.

Continued research is necessary implying the training of qualified workers and suitable environment for clinical and basic research.

Future Areas

Among the hopes in the future lie elucidation of enzyme structure and interactions, other cellular physicochemical mechanisms, the chemistry of the genes, all also in their relationship to mental retardation. Better understanding of dysgenesic and embryonal deviation and of fetal damage from maternal infection irradiation or exposure to noxious compounds already are offering hope in the prevention of mental retardation.

DISCUSSION

Cretins

In answer to a question about whether cretins who have undergone thyroxin treatment were ever perfectly normal after it, Dr. Rose felt that there was no satisfactory answer. He reported an impression that even in cases of early diagnosis, replacement therapy with cretins produced only improved intellectual capacity. Unfortunately many are not diagnosed early enough. Also, if an overdosage of thyroxin occurs and resultant symptoms occur, there is often a tendency to stop the dosage immediately instead of dropping it lower, allowing for further irreversible deterioration which, later, cannot be corrected.

Bilirubin

In answer to a question asking for information on bilirubin as it affects mental retardation, Dr. Rose suggested that it is now believed that one of the normal functions of neonatal life was to supply enzymes for the necessary change in bilirubin. In some the enzyme capacity does not develop at all, allowing bilirubin to continue to exist and effect the basal ganglia of the brain. There also resulted jaundice.

CONSULTANT AREAS

OBSTETRICS-GYNECOLOGY AND DIAGNOSIS

Douglas P. Murphy

Scope

Dr. Murphy called mental retardation "one of the major health problems of the human race". He felt that obstetrics was deeply concerned in this because a history of difficult birth was often advanced as a possible etiological factor in the retardation. The obstetrician can observe congenital malformations, some with under-developed brains and some with immediate physical effects of trauma from a complicated delivery, and also can recognize diseases during pregnancy.

Pre-Natal Causes

He described pre-natal causes of mental retardation including radium and x-ray therapy, German measles, mumps, toxoplasmosis, and listed a number of other suspect diseases. Studies were described involving brucellosis, herpes zoster, influenza, infectious hepatitis, malaria, and meningitis in utero.

Dr. Murphy recognized limitations in information caused by retrospective observations which frequently are the case rather than prospective, and by the small numbers involved in most investigative reports. He found it difficult, for instance, to compare the frequency of fetal damage in cases of maternal disease with frequency of damage in infants with mothers with no diseases during pregnancy. He also drew attention to the great variability in the nature of the pathological condition observed in infants of mothers who have had even the **same** disease.

Causes of Cerebral Palsy

He discussed at some length the causes of cerebral palsy, which may be due to birth injury but which the obstetrician is inclined to believe frequently may be due to genetic factors or at least from factors operating before the onset of labor.

Natal Causes

Dr. Murphy, in discussing the natal causes of mental retardation, distinguished between those beyond the control of the obstetrician, such as the poor vitality of the infant, interferences by the umbilical cord with blood circulation, abnormal forces of labor, and long labor, and those more or less controllable. These latter include the kind and amount of sedation, the administration of analgesic drugs, and the method chosen for delivery.

The Infant

He reported 1-2% of births die from head injuries and the possibly one third of all deaths within two weeks of birth are due to birth injuries. Cerebral hemorrhages were found in 40% of infants coming to autopsy. The problem of the size of the fetal head and of the pelvic opening was also mentioned. On the other hand, data are meager on surviving infants and although no symptoms may be observable at birth we cannot dispose therefore of the possibility of brain injury.

Value of Obstetrical History

The value of good obstetrical history is apparent. Mothers memories and interpretations of delivery strains are uncertain at best. Records about difficulties are usually not available when deliveries are done at home or often even in small hospitals. The author felt that the best records were available in hospitals attached to schools of medicine. A carefully conducted **prospective** study should be made and he described steps of such a study, and the need to determine whether pre-natal disease might exist and what other factors might be present. Such observation would be of great value to the observer.

Preventability

Dr. Murphy reminds us that all cases of mental retardation from para-natal causes cannot be prevented. He described the small number of deliveries necessary to be attended by the student and intern before being licensed to practice obstetrics in Pennsylvania as an example and pointed out the inadequacy of this in understanding complicated labor.

Future Areas

The author closed with the hope that a long time study could be made of a number of women and their offspring wherein a great number of factors relating to ultimate mental retardation might be followed up.

Harold A. Delp

STAFF AREAS

NOTE:

The organization following is an attempt to describe the material presented at the conference in Psychiatry, Psychology, Education, and Speech and Hearing. Statements are made which appear to be general conclusions from the total as well as from each of the separate areas rather than any attempt to make them professional abstracts.

The second group of conference periods were concerned with what are thought of as "staff areas" — those professional areas from which the usual institution, clinic, or diagnostic team more frequently employ staff members, as contrasted to consultants.

M-R Not Curable

Since mental retardation is accepted basically as not curable, it is only logical that operational personnel consider:

1. Improvement in results of diagnosis based on the degree of validity and the differentiating qualities.
2. Diagnosis as related to "treatment" — thus, we must know in what direction treatment (including training and management) might go for each individual.

Differential Diagnosis

For operational procedures, while etiology in medical terms is important, one primary consideration is to differentiate betweeen mental retardation, childhood schizophrenia (including autism), and congenital aphasia (or corresponding terms). Most of the speakers agreed that the above problem is one of the most common and the most difficult to answer.

Prognosis and Treatment

Another common consideration of most speakers was that diagnosis, to be complete could not be stopped in mid-point with merely a classification, but that it must be continued until prognosis and direction of treatment (education and management) could be described. They seemed consistent in questioning the intent and meaning of the term "diagnosis". What is a complete diagnosis? In medicine a diagnosis is made for the purpose of helping the patient to correction or at least improvement of the condition. But, because the physician usually handles the complete problem from diagnosis through treatment, it is difficult to specify where one ends and the other begins. As Tarjan commented, the definition of a disease includes the factors of treatment and prognosis. The confusion in the field of mental retardation seems to arise because we in general have different personnel doing the diagnosis from those responsible for treatment. Most of the speakers felt that a true and complete diagnosis in mental retardation must include statements of interpretation and probably recommendations which would assist the persons on the more specific treatment level to do adequate program planning.

Need For Teamwork

Throughout the talks, the team approach was emphasized either directly or indirectly. The point was frequently made that information must be obtained from any and all possible areas and sources if the maximum data were to be available for the most complete diagnosis.

STAFF AREAS

Delp (Continued)

While most speakers commented on the difficulties of an adequate differential diagnosis, Schlanger spoke specifically on the complexities. He pointed out that few cases were specific entities, difficult as they are to differentiate, but that many cases were combinations. The primary problem then is to determine which conditions exist in what proportions and importance to the individual.

Observation Important

Observation of the child was pointed out by most speakers as a necessity in obtaining an adequate differential diagnosis of the problem of the child. They consider it required to observe the child in his own environment in order to obtain data which, added to the more routine diagnostic techniques, would help to answer not only the more technical diagnostic questions but which would also go farther in helping the direction of a more "complete diagnosis" toward practical program planning.

PSYCHIATRY

The psychiatrists agreed that there is a need for clearer delineation and better differential diagnosis between mental retardation and the other syndromes with which it is most often confused.

They also agreed that psychiatrists must be trained to take a more effective part in the field of mental retardation.

PSYCHIATRY IN DIAGNOSIS

Leo Kanner

Role of Psychiatry

The role of psychiatry, Dr. Kanner feels, is not easy to define. The bulk of the profession seems to have shown little inclination to give serious consideration to mental retardation in most medical schools today; instruction is either omitted completely or at best given honorable mention.

A few psychiatrists realized the magnitude of the problem involving factors of differential diagnosis, training, vocational guidance, home management, residential school facilities, parent counseling, and legislative considerations. Of 9,295 members of American Psychiatric Association in 1956-57, not more than 193 belonged also to American Association on Mental Deficiency. Twenty-seven physicians were members of both American Orthopsychiatric Association and American Association on Mental Deficiency. This indicates not much opportunity for crossfertilization.

Texts in 1920's by Ziehen, Homburger, and by DeSanctis give evidence of efforts to integrate mental deficiency into the field of general child psychiatry. A monograph by Weygandt in 1913 established emphatically an inescapable connection between psychiatry and the study of mental deficiency.

From the historical point of view, this was probably the earliest attempt to look for criteria which might serve as leads to differential diagnosis.

Childhood Schizophrenia

Dr. Kanner indicates lists by Potter and by Bradley and Bowen giving features to limit diagnosis of schizophrenic children.

Recently, it has been possible to recognize specific, well-circumscribed, phenomenologically separate types within the group of childhood schizophrenias. The syndrome of infantile autism was delineated in 1943.

Kanner

While DeSanctis tried at least to introduce a diagnostic category, however diffuse it eventually turned out to be, there has been of late a trend toward the advocacy of a pseudodiagnostic wastebasket into which a multitude of different clinical pictures are thrown together indiscriminately. Rank's notion of the "atypical child" comprised all "more severe disturbances in early development which have been variously described as Heller's disease, childhood psychoses, childhood schizophrenia, autism, or mental defect." This amounts to an open renunciation of even a semblance of diagnostic precision. Szurek has commented that "we are beginning to consider it clinically (that is, prognostically) fruitless, and even unnecessary, to draw any sharp dividing line between a condition that one could call psychoneurotic and another that one could call psychosis, autism, atypical development, or schizophrenia." — not to distinguish is to confound confusion.

Review of the evolution of psychiatric thinking about childhood schizophrenia shows that two more or less antithetical trends have run parallel to each other; one which tends to dilute the concept with not too much regard for the intricacies of differential diagnosis, and another which tries to separate clearly defined syndromes on the basis of precise semeiology. The first trend has resulted in much confusion and pseudotherapeutic "shenanigans" on the part of some psychiatrists and members of related professions. While previously mental deficiency had been kept away at arm's length, it became merely another form of "atypical" development. Mother-child relationships were considered basic to all such problems.

The undeniable fact that mentally deficient children may exhibit bits of behavior seen also as symptoms of schizophrenia has led many to disregard in such instances the basic feature of deficiency and to adduce the behavioral fragments as evidence of primary psychogenic illness. This gave rise to the myth of the "emotional block." The misuse of this term, far too popular among psychiatrists, psychologists, and social workers, has been the source of a great deal of mischief in the past few years . . . There is no excuse for thus adding insult to injury. And there is no excuse for the sloppiness which is encouraged, directly or implicitly, by the abandonment of the medical requirement for adequate diagnosis.

Pseudo-Feeble-mindedness

Awareness of the problems encountered in differential diagnosis has led to the interposition of the in-between term, pseudofeeblemindedness or apparent feeblemindedness. The term is applicable if there is cause for the assumption of a satisfactory original endowment and that a motor, sensory, or emotional handicap has hampered the fruition of existing facilities. The term loses its usefulness if there is no question about the presence of an inherent intellectual defect and if the emotional or somatic handicap is a part manifestation of the overall defect. Under such conditions, the mental deficiency is real and not merely apparent. We have not at this date achieved sufficient methodological certainty which would invariably assure the ability to draw sharp lines. In some cases, we are still confronted with an uneasy diagnostic no man's land in which a clearcut diagnosis between bizarre conduct of a deficient child, the advanced stages of infantile autism, the withdrawal and unresponsiveness of the congenitally aphasic child, or the vagaries often associated with structural anomalies of the central nervous system is often subject to major perplexities. Diagnostic tools are still not refined enough to supply an unequivocal answer in each instance and we still have to rely on clinical empiricism and observation of each patient. It is quite possible that, with better knowledge, there will be now and then shifts in nosological allocation.

STAFF AREAS

DISCUSSION

George Tarjan

Dr. Tarjan agreed with Dr. Kanner in a plea for a clearer delineation and separation of differing syndromes. There is a need for better differential diagnosis between childhood schizophrenia and mental deficiency. Traditionally in medicine a disease is concisely identified when its etiology, symptomatology, epidemiology, natural history, the specificity of treatment, and prognosis differ from those of all other conditions. Unfortunately, most medical conditions do not separate this sharply from other conditions. The more difficult the separation of a disease becomes, the greater the tendency to establish either arbitrary differentiating criteria or to concede that differential diagnosis is really impossible.

One should expect that diagnosis would have a reliable prognostic meaning. Tarjan expressed concern over the reliability of our differentiating criteria and over the logic of the classification system in mental deficiency. There is need for more accurate criteria for differentiation and an even greater degree of skill in the application of these criteria.

Frederick C. Thorne

All future progress in the field of mental deficiency must rest on more valid diagnosis. In an effort to achieve a satisfactory psychobiological and psychopathological diagnosis in mental deficiency, we have sometimes overlooked other levels of diagnosis related to actual problems of the mentally retarded person meeting his environment. We need to consider diagnostically not only the psychopathological mechanisms underlying any specific case of mental deficiency but also the implications of his mental status as it will affect his whole future history.

Altitude Quotient

From pathological diagnosis and classification into types and levels of I.Q.'s, Dr. Thorne indicated gradual change to Jastak's concept of altitude quotient — seeking to identify the most unique abilities of the person on which his optimum future accomplishment might be conceived to depend. A comprehensive diagnostic formulation must evaluate not only the intellectual and altitude quotients, but also a wide variety of personality factors, situational factors, environmental resources, and any other factors which might influence the individual case.

Diagnostically speaking, what are some of the specialized educational, psychological, and social needs of the mentally deficient? There is need to make a great many diagnostic decisions concerning how to stimulate the maximum intellectual development, to stabilize personality integration, and to provide suitable opportunities in the environment for the placement and satisfaction of the needs of the mentally deficient.

Future Developments

Dr. Thorne indicated the direction in which he felt developments probably will go:

1. He felt that more intensive and appropriate training is the essential ingredient for personal growth of all mental deficients. **The functional intelligence of the mentally deficient may be greatly improved if he can be taught to act in any given situation as a more intelligent person would do.** Thus, habit training plays an extremely important part.
2. It is rapidly becoming apparent that mental deficients require special types of guidance, counseling, and therapy suited to their limited intellectual and personality resources. The mental deficient seems to need more directive supportive handling and therapy.

Thorne

3. As Dr. Kanner pointed out, all this calls for a much greater investment of time and money to carry out in an interdisciplinary aproach in order to make all of the types of diagnostic and therapeutic recommendations necessary to accomplish successful educational and social rehabilitation of the countless cases which are too often relegated to custodial care under our present system.

Delp

CLINICAL PSYCHOLOGY

The speakers agree that tests, though necessary, are very limited in giving the complete diagnostic answers needed. They also asked for the observation of "real life" situations to increase the validity of all aspects of diagnosis — classification, prognosis, and treatment. They emphasized that diagnosis must give practical help for program planning.

CLINICAL PSYCHOLOGY IN DIAGNOSIS

Seymour B. Sarason

Dr. Sarason felt that there is general agreement that when a psychologist comes to a conclusion about the appropriateness of the diagnosis of mental subnormality his diagnostic work is far from over. Many times the decision as to what label should be pinned on the child is the easiest decision to make.

Diagnosis After Classification

Sarason listed five questions requiring the diagnostic process **after** the initial classification diagnosis. After the specific questions for diagnosis, he asked: what do you want to diagnose? — what do you have to diagnose? If the answer is confined to nosology, it is a relatively simple task. If we attempt a number of different diagnostic problems, it becomes really difficult. The other diagnostic questions bear directly on the problems of management and treatment — what should be done with this child? One may be unable or unwilling to decide whether a child is mentally deficient or schizophrenic or both. But one cannot (or should not) postpone recommendations concerning management and treatment. One cannot make these recommendations unless a number of related diagnostic questions have been answered.

Tests

How to get data — A. Psychological tests (particularly personality tests) can be helpful but have at least 2 limitations. (1) Scientific validity. (As a source to be relied on for hypotheses to be tested more directly, they are invaluable tools). (2) Depending on tests narrows unduly the varieties of behavior we can observe.

Parent Interviews

B. Interviewing parents, another traditional source, also has limitations similar to psychological tests. Two implications are (1) that we need controlled and systematic research about the degree to which such procedures provide necessary data and (2) that we ought to give consideration to the use of non-test and non-interviewing methods as diagnostic aids. Very few professional persons have systematically observed their cases in "real life" situations, e. g., in his home, school, and play.

Many children have been diagnosed as mentally deficient with the recommendation that institutionalization be seriously considered without all of the necessary questions being asked regarding family relationships, how institutionalization will improve the remaining family relationships, and the like.

STAFF AREAS

CLINICAL PSYCHOLOGY IN DIAGNOSIS (Continued)

Sarason

Multiple Diagnostic Factors

In any case considered the problem involved a variety of diagnostic problems and not a single diagnostic decision. From the stand point of management and treatment the most important diagnostic formulations are usually other than those involved in categorizing the child on the basis of traditional nosologies. Dr. Sarason assumes that ethical, professional, and social considerations do not permit overlooking the needs and problems of those family members who are not "presented" to the professional formally.

Our general concept of persons in general affects adversely much understanding of people. If a bright child performs a cruel act, it is not said that he did it because he was bright. But if one of I.Q. 60 commits such an act, it is frequently "explained" by pointing to his I.Q. as the etiological agent for the behavior. Few types of behavior of mentally subnormals have not at times been explained by a low test score. This way of thinking makes it difficult for many workers to conceive of the behavior of the mentally subnormal individual in dynamic terms. The adequacy and significance of the diagnostic process is thus affected. — (1) It simply does not do justice to the complex of variables operative in producing any type of behavior in any individual, subnormal or otherwise. (2) Failure to pay attention to this complex of variables increases the liklihood that program planning will be inadequate in producing change of which the individual is capable. (3) By attributing etiological significances to the low test score or to a diagnostic label we unwittingly make it possible to view our problems in terms of theoretical or research developments which have proved fruitful in understanding of human behavior.

To achieve the maximum benefit from a diagnostic formulation one needs more than a statement of correlation of behavioral symptoms. One needs, in addition, a formulation of etiological factors — intraindividual, intrafamilial, social, or cultural — on the basis of which a program can be developed for a particular child.

DISCUSSION

Edward L. French

Team Approach

Because of the development of intelligence tests and because lowered intellectual functioning is an outstanding symptom of the condition of mental retardation, psychology is the traditional clinical discipline associated with this field. Psychology, along with Education, stood almost alone in being interested in the problems. Psychiatry joined the team several years ago and interest has increased rapidly. Today the "clinical team" is spoken of in clinics and treatment centers. But often this is a 3- or 4-profession team when the team should be upwards of 11.

Treatment-Oriented

Dr. Sarason indicates the strong current trend away from the traditional nosology of "label-writing" to a more realistic "treatment-oriented" descriptive and etiological evaluation on an individual basis. The treatment program is dependent upon the diagnosis, but, contrary to traditional thought (agrees with Sarason), the treatment program is **not** implied by a mere diagnostic classification.

There is potential value in knowing something of the child's intellectual pattern — his learning strengths and weaknesses. An I.Q. is an **average**, not a representation of a single entity.

French

We are still a long way from a totally integrated, totally individual-centered, totally treatment-oriented diagnostic process. We are still almost exclusively interested in differentiating among mental deficiency, schizophrenia, and aphasia — important though this is as **a first step** and difficult though it may often be. The differential diagnosis is important but it is equally important not to stop there.

Psychology as a basic discipline is still test-oriented as opposed to patient oriented. Thus, it is necessary for the full diagnostic evaluation to go beyond the test and parent interview and use every available source of information on the child's reaction pattern, his family structure, his inter-personal relations, and his modes of learning.

Program Planning

The goal of the psychological evaluation is to give practical help for program-planning — for the child and for his family. We must start to find out, from direct observation, how the child plays with other children, how he reacts to authority figures, how much he senses his inadequacies, how much guilt his mother is suffering from, and other questions.

Thomas L. McCulloch

Dr. McCulloch agreed with Dr. Sarason that the psychologist must use to collect data any methods which are relevant and within the worker's competence. He felt, however, that there is difficulty in operating in a realm where norms have not been developed, such as in observations in home and school. He also discussed the tendency of some psychologists to downgrade the significance of actual tests used and to consider them not valid. The lack of validity would seem to result primarily when the tests are not properly used.

In psychological diagnosis the obvious positive conclusions are usually reached by most examiners. However, if the case is not developed fully enough to have reached areas of low-confidence and even lack of information, the case is not yet completely analyzed. He felt that another problem was for the psychologist to go too far in attempting to explain everything on the basis of low mental ability alone on the one hand and in ignoring mental level and interpreting completely in terms of dynamic concepts on the other hand.

Delp

EDUCATION

Professional Coordination

Speakers in education agreed on the need for conferences between the professionals doing the primary diagnosis and the educators or management personnel attempting to plan and carry out a program. Only in this way do they feel that results can be realistic. Too often the first group consider the individual in isolation whereas the program must be carried out in a real situation which usually has many limitations.

The educators also considered the need for themselves (including teachers) to be more adequately trained in diagnosis. They implied that perhaps the educators will have to take the basic diagnosis from psychological, medical, and other specialists and be responsible for the complete transition to fitting a program to the individual.

STAFF AREAS

EDUCATION IN DIAGNOSIS

Lloyd Dunn

Treatment-Oriented Diagnosis

The thought permeating conference has been that diagnosis should be for something — it should be treatment oriented. The psychiatrist has several treatments possible in his armamentaria. The psychologist has at least two — psychotherapy and environmental manipulation. Speech and hearing specialists have more than one available. But the educator differs from all of these in two respects. (1) He has the responsibility for only one form of treatment — the school program. (2) While the others usually deal with individual children, both in diagnosis and treatment, the educator primarily must deal with groups of children. In addition the "treatment" time of the educator exceeds all of the other treatments combined and overshadows them. The school has each child for several hours per day during his complete school life. More than 250,000 teachers handle classes for mentally retarded. Relatively very few psychologists, psychiatrists, or speech pathologists deal specifically with the mentally retarded.

Educator's Decisions

For diagnosis from the educator's point of view three kinds of information are needed. In a sense he is concerned with three types of decisions.

(1) Are we able to provide for the child in the regular grades in a regular school program or does the child need special education services? In this part, the Revised Stanford-Binet test is a valuable tool since it is related to school-type abilities. Even this depends on an eligibility zone rather than a specific I.Q. dividing line. There is even the tendency of some professional persons to make special schools and classes a dumping grounds for problems of other kinds.

It must be determined whether the child's problem is due to a multiple handicap or some other disability rather than the major handicap being mental retardation. Educational achievement and school history play an important role. Should the psychologist, the medical doctor, and other professionals feel a responsibility to make the final decision or at least enter the decision as to whether or not the child remains in the regular grade? Perhaps it is the place of other professionals to assist on the team to decide on placement and program.

After Classification

(2) After deciding if the child is eligible for special education, we have hardly scratched the surface. Yet this is all many psychological and medical reports consider. Education has several possible programs depending on other differentiating factors. Even after general level is defined in terms of "trainable" or "educable" there are other difficult problems of prognosis and help is needed from the other professionals. Attempt is made to differentiate subgroups in addition to the broad classification of trainable and educable in order to set up various educational procedures more appropriate to these subgroups. Factors involved in subgrouping include cultural deprivation, brain injury, hyperactivity, hypoactivity, and others. The second decision involves which subgroup the child fits and who should make the decision.

Methodology

(3) In terms of specific teaching methodology, even fine decisions must be made. Various types of retarded learn even specific subjects such as reading by quite different routes. Can the psychologist assist in diagnosis to answer some of these problems? Many specific questions must be answered before teaching methods can be started with any confidence. Too often we tend to fit the child to the one method we know rather than fit the method to the child because of lack of information.

When the teacher refers a child to the psychologist, it is in an effort to receive direction as to methodology. When the report is simply involved with classification, the

Dunn

teacher gets no help and so ridicules the report. Perhaps no psychologist can be expected to provide the kinds of detail needed. Perhaps the educator who works with the child must be trained both as a diagnostician and a teacher. It may be that ¼ to ½ of the training programs of educators should be in the area of diagnostics in order to have a day-to-day look for educational capacities. But an added danger here is the teacher's attitude toward changing roles from an educator one minute to an objective diagnostician in another. Perhaps the teacher should have one hour of the day set aside for child study on individuals and small groups. School administrators as well as the other professions would have to modify their points of view quite a bit.

DISCUSSION

Harold R. Phelps

Coordinate Diagnosis

Without the help of educators, diagnostic specialists are likely to make recommendations which appear very impractical when viewed out of context. Teachers are professional people and are in a very real sense specialists in fitting educational experiences to specific kinds of children. In some training of school psychologists the policy has been to have them make no recommendations or plans for children unless there was evidence of joint planning with the teacher and the principal. In this way recommendations were usually realistic and within the realm of possibility.

In general perhaps the diagnostic specialist should limit his efforts to constructing the very best picture of the child as he sees him, placing it in the framework of an interpretation **only,** leaving it at that point with no recommendations. There is nothing that can be satisfactorily substituted for a conference of the diagnostician with the teacher and the administrator at which time various recommendations and plans are considered, accepted or rejected according to whether they seem feasible.

The Teacher a Diagnostician

Dr. Dunn has given a picture of the teacher as being in a very real sense a diagnostician. A good teacher maintains a diagnostic point of view at all times. Facetiously, perhaps the really big difference between her and her fellow diagnosticians in medicine and psychology is that she has to live with her diagnoses day after day.

The teacher has another side to her role as a diagnostician. She must not only be a diagnostician of a child's abilities, interests, achievements, and adjustment, but she must also in a very real sense be a person skilled in the diagnosis of the community, the culture, and perhaps the politics of the town in which she teaches. To put it more directly she has to know what it takes to get along in the community.

How does the teacher accomplish this diagnostic role? All too frequently she "plays it by ear." But this is not necessary because much can be found in the professional literature which deals with educational objectives for the mentally retarded. For the benefit of the teacher we need many more and continuing followup studies of children who have been in educational programs for the retarded. Curriculum building must be done with a diagnostic point of view. Ideally, all teachers should be involved in this process, along with various specialists like the school psychologist, school social worker, and the guidance counselor. Hopefully, a suggestive list of activities and learnings appropriate to various levels of maturity and skill will be developed. It would be most desirable if various diagnostic instruments were developed to determine whether the learnings and objectives listed in the curriculum were being accomplished.

In teacher education we should do our utmost to give teachers skills and attitudes that will lead them to think of themselves as educational and psychological diagnosticians.

STAFF AREAS

DISCUSSION (Continued)

Samuel Kirk

Diagnosis Plus Treatment

Dr. Kirk disagreed with Dr. Dunn that all of other disciplines were very specific, clear, and concise in their procedures in diagnosis. His impression is that we are all quite vague in our methods and procedures in diagnosis.

It is rather futile in education to discuss diagnosis without discussing treatment. Actually, we seem to have two large professional groups in the field of mental retardation, one a diagnostic group and the other a treatment group. The medical and psychological professions devote most of their time to diagnosis, while the educational and social management professions devote most of their time to what we call education, treatment, or management.

Psychologists, for example, examine the child and then leave the treatment or education up to the teacher. In many cases the psychologist knows very little about what the teacher does, and the teacher knows very little about what the psychologist means by some of his terminology. Those who diagnose have little contact with the future of the child and those who manage or educate him usually have very little contact with the diagnosticians.

Historically, the opposite was true in the important cases. Itard, Seguin, DeCroly, and Montessori, all physicians, made major contributions to the areas of education and treatment, following initial diagnoses. Alfred Binet, the psychologist known for his invention of the Binet intelligence test, wrote and worked in the field of education of the retarded. Today, we do not find the physicians and psychologists who make the diagnosis actually carrying out the treatment in the form of education, management, and other means. We are in an age in which one profession deals with one aspect of a problem, and some other profession handles other aspects of the problem. At times we are unable to communicate except in conferences of this sort.

The psychologists of the prewar period who were primarily child psychologists and worked primarily with children have tended to disappear from the scene. During the postwar period a clinical psychologist obtained most of his training in psychotherapy and experimental psychology, and worked primarily with adults in mental hospitals. When we called upon these clinical psychologists to examine mentally retarded children, we found that they had little training and experience in this field, . . . and often were not very proficient in differential diagnosis of the mentally retarded.

Organicity and Education

The problem of the meaning of a reference of "organicity" to the teacher is involved. How does she alter her educational program as a result of this diagnosis? In most instances she pays little attention to it, but may worry about her ignorance about this profound "diagnosis", based on indirect evidence and speculation.

One teacher pointed out that 12 out of 15 psychological reports gave the same kind of diagnosis: (1) the child was eligible for the class for mentally retarded, (2) the child had some personality disturbance, and (3) the child should have play therapy. The teacher pointed out that she did not know how to give play therapy, and furthermore her job was not in psychotherapy. There were no suggestions of how procedures of the classroom could utilize the principles of play therapy. Other psychologists have particular biases, some always recommending neurologicals as an example.

It is only in the last few years that we have insisted that psychologists include some reference in their diagnosis, as Dr. Phelps mentioned, to the teaching situation itself. Many of the diagnostic reports received on mentally retarded children come from mental health clinics, from psychiatrists and clinical psychologists. Usually their reports have little relationship to what the teacher is to do.

Kirk

Case Conference

The case conference technique has helped to solve the dichotomy which we have in the field of mental retardation. In the public schools a better understanding is possible if the school employs a school psychologist trained in the area of mental retardation.

What is our solution? Dr. Dunn gave one solution which was that we train teachers in the diagnostic function more than we have in the past. As a matter of fact, the first teacher training program for mentally retarded children was organized at The Training School at Vineland before World War I. In reviewing it, it was found to consist of part of what Dr. Dunn was recommending — training teachers in some form of diagnosis, the hypothesis being that through her own diagnosis, a teacher can find out what the child's abilities and disabilities are and then organize the training program around her own diagnosis. (Ed. — At that time, it must be remembered, there were only a small proportion of the number of psychologists we have today.)

Research in Special Education

Another area of diagnosis just evolving in this country is research in special education. Research is done for the purpose of finding out what kinds of children can earn, how they develop, what procedures are necessary to produce the most efficient form of learning, what children cannot make progress, which ones need more individual work, and which ones need more emphasis on social adjustment. Our diagnostic techniques and our diagnostic perceptions can be sharpened through educational research.

Doctor Goldstein[3] has analyzed the concept of mental retardation from a social point of view. He states that mental deficiency is a status in a society with three elements that must be taken into consideration in determining the status of the mentally retarded. These are: (1) the mental subnormality of the child, (2) the social adjustment of the child, and (3) the society to which the child must adjust. At the present time our psychological tests give us an objective rating of the intellectual development of the child. We have little objectivity in the social adjustment area, and still less of an objective measure of the society in which the child lives. When these measures have been developed to a higher level, we will be able to say that because of a certain degree of subnormality, this child is mentally retarded since he is unable to adjust within the society milieu in which he now lives. It is possible that even with the same degree of mental subnormality he could adjust in a simpler social milieu and therefore would not be mentally retarded.

SPEECH and HEARING

Delp

Differentiation between mental retardation, aphasia, and childhood schizophrenia seems to be a primary problem for the speech pathologist. While Eisenson discussed methods of attempting to differentiate among the three, Schlanger emphasized the complexity of the overlap of these conditions.

The value of the speech pathologist in answering questions for the other diagnosticians was brought out in the need for information on speech, hearing, and the like before other types of testing are attempted.

STAFF AREAS

SPEECH and HEARING IN DIAGNOSIS

Jon Eisenson

Non-Verbal Child

In arriving at a differential diagnosis for the mentally retarded child, who is also non-verbal, we must rule out other possibilities that underly or may be associated with the failure of the child to develop verbal behavior. For this purpose we must be able to rule out or to evaluate the contributory effects of hearing loss, sensory losses other than hearing, perceptual disturbances, motor impairments which may impair the purposeful, coordinated activity of the speech mechanism, and/or emotional disturbances. Dr. Eisenson undertook to differentiate only between mental retardation and so-called congenital aphasia and mental retardation and the form of emotional disturbance in childhood referred to as primary autism or childhood schizophrenia.

Congenital Aphasia

For Dr. Eisenson, a congenitally aphasic child is one who, by virtue of established brain damage, or because of developmental failure of the cerebrum, presents a syndrome which includes the following:

1. Perceptual dysfunction.
2. Laterality confusion, usually with associated inability to localize sound and more general spatial disorientation.
3. Inconsistency of response to verbal situations.
4. Morbidity of response (inability to change a response once it has been made). This is usually associated with inability to shift or change an initial frame of reference.
5. Unevenness in language development.
6. Lability in other forms of behavior, with lability increasing as verbal behavior is normally expected.

Non-Organic Retarded

The "uncomplicated" non-organic mentally retarded child is likely to be delayed in speech development. As research at Vineland has indicated, the amount of speech and language delay is directly related to the degree of mental retardation.

Answering questions related to the above factors with "yes" would suggest aphasic involvement rather than (Ed.—or in addition to) mental deficiency.

Though a neurological examination should always be included as a part of the physical work-up of the child suspected of being congenitally aphasic, the results are often not clear cut. In brain damaged children, the perceptual process is believed different from normal children. If we find non-speaking children who are not deaf performing perceptual tests as in the manner of known brain damaged children, we may suspect that the non-verbal child is congenitally aphasic. Mentally retarded children without brain damage frequently perform much like the brain damaged because the child is not capable of understanding the task to be performed. Expert clinical judgment is required to determine the difference.

As a result of brain damage, a child becomes impaired in his ability to appreciate relationships and to develop symbol behavior.

The Autistic Child

The autistic child seems to have little use for language because language is a human accomplishment and he has little use for human beings. There is an important dysfunction which seems to be shared by many brain damaged and by most autistic children. The dysfunction has to do with spatial dysfunction. It is not difficult to theorize how spatial disorientation may result in failure to learn to speak. If the person speaking cannot be located, or if the child cannot orient himself in relationship to the speaker, speech becomes a source of anxiety rather than of contact and security. To reduce this anxiety, the child may reject speech.

Eisenson

If we are to reduce the differential criteria for the mentally retarded, the congenitally aphasic, and the autistic child to a single characteristic, it would have to do with the trait of consistency. The uncomplicated mentally retarded child is relatively consistent in his speech behavior. The brain damaged child is an inconsistent, labile performer. The autistic child is impulse driven and inconsistent. The mentally retarded child can be counted on to express his relationships with his environment with whatever language he has at his disposal. This is not reliably so for the brain damaged child, and almost impossible to anticipate for the autistic child.

DISCUSSION

Bernard B. Schlanger

Overlapping Categories of Speech Disorders

There is a question of category overlap which has not been brought up. Mental retardation as a symptom complex is not uncomplicated, particularly if a need is demonstrated for a differential diagnosis. Not only may brain damage result in mental retardation, but it could cause motor damage, hearing loss, ad infinitum. Each characteristic interacts with the other, depressing intellectual functioning, delaying language development, breeding anxiety. Both mental retardation and the delayed language and speech development may result from unrelated somatic or psychic factors. We know that the psychological and sociological handicaps play significant roles in influencing the degree and nature of the mental retardation, speech emergence, and the progress of language development.

We are all cognizant of the difficulties in endeavoring to classify behavior on etiological bases. Such inherent variability exists in the brain-damaged children that many of the residents of The Training School, for example, just do not fit into a format that implies a neat category with a clear differential diagnosis, its implied progrosis and therapy procedures designed to bring out the child's potential. Attempting to differentiate between congenital aphasia, emotional disturbance, and mental retardation is not simply that of ruling out one condition or the other but of endeavoring to estimate each one's relative importance.

Three cases known had been diagnosed as brain damaged. All demonstrated aphasia, further complicated by hearing losses, and moderate, variable retardation. There were things they could do well and things with which they had great difficulty. Behavioral maladjustment was also evident in temper tantrums, withdrawing, and other mild aberrancies. Language was severely impaired. After a long period of therapy in the language area, limited progress was discernible but prognoses for improved communication are poor. They perform capably as farm workers and in domestic activities but the predicted potential of borderline mentality of several years past has never been fulfilled. Their linguistic handicaps are permanent, their slow learning patterns unalterable.

These examples would be difficult to diagnose using Dr. Eisenson's criteria and suggested tests. Younger children are even more difficult to diagnose because they are less capable of responding to differential testing. Here, along with all possible examinations, the child should receive language development therapy to improve communication skills and attitudes and to permit further opportunities to explore speech behavior. The very young children, three, four, five, six, those who could receive the greatest benefit from early diagnosis and be programmed to advance their levels of behavior, these cannot respond to many of the tests which aid in our differentiation. Diagnostic therapy may be

STAFF AREAS

DISCUSSION (Continued)

Schlanger

used for such children (Ed.—periods of contact with the child for the purpose of observation and continued study for diagnostic purposes) when they are not responsive to formal testing instruments.

Role of Speech Pathologist

The role of the speech pathologist in many instances is an important one in the diagnostic program. As an example, prior to the psychological testing, the psychologist may need information concerning the subject's hearing, among others.

No single clinical category can adequately classify causal factors in problems of emergence of speech and language. No single test which might be suitable for a young child is discriminating enough to differentiate causal factors when there is communication delay. Until the day that we can devise more discriminating measures and tie this in with "reality" or non-test observance, a coordinated testing program into all levels of the child's development cannot be avoided. There is a strong need for tests to assess language development. Possibly new simple batteries can be devised evaluating levels of verbal output, kind of output, comprehension, inner comprehension and expression. Then we will know, perhaps early enough, what to do about it.

Robert West

Autistic vs. Disturbed

In discussing the relationship between autistic children and emotional disturbance, Dr. West disagreed somewhat with Dr. Eisenson. West felt that autism was not in a real sense an emotional disturbance but rather something in the child's makeup (perhaps inheritance and/or organicity) which makes him satisfied with his own thoughts and hence he ignores people around him. As both indicated, the autistic child has not desire for communication.

He described speech problems related to emotional disturbance as environmental situations which inhibit the speech of the child through punishment, dominance, restriction of emotional contact with the child, and the like.

Speech and Intelligence

West agreed with the statement that loss of speech is correlated with lower intelligence but pointed out that the opposite direction did not exist — better speech with high intelligence. He indicated a relationship from an organic damage producing, among other things, a loss of intellectual capacity. This loss causes a speech disorder but the brain damage also may cause a speech disorder. Thus, two kinds of speech disorders may exist. The paucity of thought and vocabulary and the lack of discrimination in grammar on the one hand and the losses of motor control and the like on the other.

West also brought out the relationship to specific types of hearing losses and the speech difficulty where the child's problem has many of the aspects of an aphasia. He also discussed a point of view that, in aphasia different from most other testing areas, we should be concerned with the abilities which remain rather than emphasize those which are damaged.

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(1) From the Conference anncuncement folder.
(2) See appendix, "Conference Planning Committee."
(3) Dr. Herbert Goldstein, assistant professor, Institute for Research on Exceptional Children, University of Illinois.

Conference on Diagnosis in Mental Retardation

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